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shaft on a 30' vein leaving an E & W strike and 55° dip to the north. Similarity to the Techatticup and presence of low gold values in a sample taken by us at the bottom of the shaft lend interest, and additional work may be repaid by ore discoveries.

Goodsprings District.

A night drive brought us again to Las Vegas on June 2nd, and on the morning of June 3rd we departed for Goodsprings with Mr. Warren Richardson for Las Vegas, in his automobile. At Goodsprings we were joined by J. A. Fredrickson, and proceeded to the Shenandoah Mine in the western part of the district, and west of Shenandoah Peak.

This mine is owned by J. A. Fredrickson and P. H. Springer, Jr. of Goodsprings, and a large fine showing of lead-silver ore has opened up. It is located high on a precipitous west mountain side, and is reached by a steep, wide, long, winding trail, over which considerable ore has been packed out by burros. The vein averages about 6 feet wide, and is a replacement in limestone along a flat, nearly horizontal bedding plane, which shows evidence of movement by the presence of breccia. Near the end of the tunnel a chamber of ore is opened up 9 feet high and 8' wide, and a drift run 30' SE from this point along the vein is entirely in high grade lead ore. The ore consists of cerussite, galena and wulfanite. in a limestone and calcite gangue. The percentage of wulfenite (lead molybdate) is apparently high, but no payment is made by the smelters on the molybdenum content of the ore that has been shipped. The wulfenite occurs as loosely consolidated yellow crystals in the seams and cracks. This mine could be shipping steadily now, if silver and lead prices were better.

A small pneumatic concentrator placed just below the tunnel has been used to concentrate some of the lower grade ore with fair results as to grade of the product recovered, although there is a high tailings loss. The difficult problems are those of transportation and water. The showing at the mine for the work done is excellent, and it may become an important producer in the future.

The Azurite Mine.

This is located about half a mile west of the Shenandoah on the same ragged mountain slope of Paleozoic sedimentaries. It is also a replacement deposit, but in a very siliceous limestone, verging on quartzite. It is copper ore containing no lead. The strike is N 30° W, dip 18° NE. The average width is 3½ feet. Ore containing 30% of copper has been shipped, and Mr. Springer stated that none of the vein material would assay less than 10% in copper.

A most interesting peculiarity observed here is the combined occurrence of copper and coal at one place in the mine, in a seam of impure coal about 6 inches thick. We secured a few specimens. The average ore contains copper oxide, carbonate, silicate, and iron oxide. The vein follows a bedding plane of the sedimentary rocks. It has been developed by a tunnel, drifts and raises. One raise extends up 180' to the surface, and in it, at one point the vein was 22 feet wide. It was first located in 1887, has produced about $250,000, and is now owned by Fredrickson and Springer, of the Shenandoah.

The Boss mine, once famous as a lode plantinum producer is now owned by the Yellow Pine Mining Company. The mine is idle and the buildings have been removed, but during the last winter 2 or more carloads of gold ore are said to have been mined and shipped.